

# AGRICULTURAL CONTRACTING, COMPETITION, AND ANTITRUST

JAMES M. MACDONALD

Two powerful and related trends in the organization of U.S. farming are: production is shifting to larger family farms and agricultural contracts are increasingly being used to guide the production and marketing of farm commodities. These combined structural changes affect productivity and costs in agriculture and in the broader food sector, and also affect the financial returns to farmers, benefiting some while harming others.

Structural changes have also led to initiatives, including legal challenges and legislative proposals, primarily in livestock industries, aimed at limiting the use or ameliorating some effects of contracts. Cattle feeders sued meat-packers over packers' use of contracts to influence prices in contract and cash market sales.<sup>1</sup> Congress passed, and USDA implemented, a law mandating price reporting of livestock and meat sales, aimed at improving the information available to market participants in the wake of sharp declines in cash market volumes and related voluntary reporting in the late 1990s. In the current Congress (109th), one bill (H.R. 4713 and S. 818) would prohibit, except within seven days of slaughter, packer ownership of livestock, or arrangements that give packers "supervisory, managerial, or operational control" of livestock. Another (S. 960 and H.R. 4257) would prohibit the use in livestock transactions of forward contracts that do not set firm prices in dollar terms (no formulas); forward contracts that cover more than 40 cattle or 30 hogs; and forward contracts that are not offered for bid in a public

manner. A third (S. 2307) aims to alter the environment for livestock production contracts, by requiring clear statement of certain terms and by providing producers with rights concerning contract cancellation and bargaining associations, among other provisions.

Agricultural marketing and production contracts can be designed to limit competition in commodity markets; but they can also improve market efficiency by lowering production costs or ensuring expanded variety. Because contracts can produce societal benefits, it is important to distinguish harmful from beneficial features. In this paper, I describe how contracts can be used to limit competition, and link those conditions to antitrust policy tools. However, antitrust tools, focused on competition, are relevant to only a few of the issues created by contracts. Some issues are actually antithetical to antitrust as it is now applied; others, while important, are not remediable through antitrust. Attempts to use antitrust tools to attack the second and third sets of issues are likely to be ineffective.

## The Growing Importance of Contracting in U.S. Agriculture

Contracting in U.S. agriculture can be summarized with data from USDA's Agricultural Resource Management Survey (ARMS), and from its predecessor, the Farm Costs and Returns Survey (FCRS). These annual surveys elicit information on farm finances, production practices, marketing decisions and outcomes, and farm household demographics and finances.<sup>2</sup>

Contracts covered 39% of the value of agricultural production in 2003, up from 36% in 2001 (table 1), with a strong long-run trend—contracts covered 28% of production in 1991–3 and 11% in 1969 (this last according to data gathered for the 1970 Agricultural Census).

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James M. MacDonald is Chief of the Agricultural Structure and Productivity Branch of the Economic Research Service, U.S. Department of Agriculture.

He thanks Wade Brorsen, Bill McBride, and Keith Wiebe for comments on earlier drafts. The views expressed herein are his own, and do not reflect the views of the U.S. Department of Agriculture.

This article was presented in a principal paper session at the AAEE annual meeting (Long Beach, CA, July 2006). The articles in these sessions are not subjected to the journal's standard refereeing process.

<sup>1</sup> In *Schumacher et al. v. Tyson Fresh Meats, Inc., et al.* (alleging knowing use of false data to manipulate pricing formulas) and *Pickett v. Tyson Fresh Meats, Inc.* (alleging use of contract cattle to depress cash market prices).

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<sup>2</sup> For more information, see the ERS ARMS briefing room, at [www.ers.usda.gov/Briefing/ARMS/](http://www.ers.usda.gov/Briefing/ARMS/)

**Table 1. Contracts Cover a Growing Share of Agricultural Production**

Item	1991–93	1996–97	2001–02	2003
Share of U.S. farms with a contract (%)				
All farms	10.1	12.1	11.0	9.6
Share of production value covered by contract (%)				
All commodities	28.9	32.1	37.8	39.1
Crops	24.7	22.9	27.8	30.8
Marketing contracts	22.8	21.1	24.7	29.7
Production contracts	1.9	1.8	3.1	1.1
Livestock	32.8	44.8	48.3	47.4
Marketing contracts	11.6	22.0	14.5	13.7
Production contracts	21.1	22.8	33.8	33.7

Source: MacDonald and Korb (2006).

The ARMS survey distinguishes marketing and production contracts. In *production contracts*, farmers provide grower services, and contracts delineate grower services, contractor responsibilities, and compensation. Contractors usually retain ownership of the commodity during production and provide key inputs, such as feed, pigs or chicks, and veterinary and transportation services for hog or broiler contracts, or seedlings and transportation for horticultural contracts. *Marketing contracts* focus on the commodity as delivered to the contractor. They specify a commodity's price or a mechanism for determining the price, a delivery outlet, and a quantity to be delivered. The pricing mechanisms may limit a farmer's exposure to the risks of wide fluctuations in market prices, and they often specify price premiums to be paid for commodities with desired levels of specified attributes (such as oil content in corn, or leanness in hogs). Growers retain primary control over production.

Table 1 shows that contracts, almost always marketing contracts, cover just under a third of crop production (production contracts are used for some seed production, as well as some vegetable and horticultural production). In contrast, contracts cover nearly half of livestock production, and production contracts cover about two-thirds of contract livestock production.<sup>3</sup>

Contracting is far more prevalent among larger farms—only one in ten farms use contracts, but contracts cover nearly 40% of pro-

**Table 2. Larger Farms Contract More: Results from 2003 ARMS Data**

Farm Size (Gross Sales)	Farms with Contracts (%)	Production Value under Contract (%)
Less than \$250,000	6.2	19.9
\$250,000–\$499,999	43.5	31.3
\$500,000–\$999,999	59.1	42.6
\$1 million or more	64.2	53.4

Source: MacDonald and Korb (2006).

duction (table 1). Only 6% of farms with sales under \$250,000 use contracts, and contracts cover one-fifth of their production (table 2). But nearly two-thirds of farms with at least \$1 million in 2003 sales used contracts, and contracts covered over half of production from those farms.

Expanding contract coverage coincides with important and ongoing structural changes in agriculture. Those structural changes include:

- A sharp shift of agricultural production to larger family-operated farms, in most commodities, with an accompanying sharp decline of smaller commercial family farms (Hoppe and Banker 2006);
- Increasing concentration, often to just two to four competitors, among many buyers of agricultural commodities, usually accompanied by shifts to much larger plants. This shift is ongoing in livestock and poultry slaughter, and in grain processing and distribution industries, fluid milk processing, and retail supermarkets; and
- Increasing concentration in many ancillary input- and service-providing sectors, such as rail transportation, seeds, farm chemicals, and farm equipment sectors.

<sup>3</sup> The survey covers commodities as they are removed from farms, not as they arrive at processing facilities. For example, many farmers grow hogs under a production contract with an integrator, who then delivers hogs to a meatpacker under a marketing contract. A farm survey will not capture the contractor's marketing arrangement with the meatpacker; hence surveys of packers will generate larger volumes of livestock moving under marketing contracts.

The structural upheavals reflect, in some and perhaps most cases, the exploitation of new scale economies (Buccola, Fujii, and Xia 2000; Key and McBride 2003; MacDonald et al. 2000; Ollinger, MacDonald, and Madison, 2005; Morrison-Paul, Nehring, and Banker, 2004; Mosheim 2006). As such, structural change can lead to lower costs, lower prices to consumers, and higher returns to resource providers; it also leads to lower returns for those competing producers who do not adapt to new technologies.

Increased concentration, associated with many of the sector's structural changes, may lead to increased market power, expressed as the ability of sellers to raise prices above, or of buyers to reduce prices below, competitive levels.<sup>4</sup> But the linkage between concentration and the exercise of market power is conditional on many other factors, including entry barriers into a market, the alternatives available to those facing potential market power, and the nature of the product being sold. Theory and empirical evidence show that there is no simple monotonic relationship between concentration and market power.<sup>5</sup>

Contracting enters in complicated ways. Contracts may help to exploit scale economies by assuring the commitment, to provide or accept large commodity flows, that participants and their lenders may need before investing in large, capital intensive production facilities. Or, some differentiated agricultural products, such as specific varieties of hogs, lambs, corn, or flowers, may be highly specific to one buyer; and producers, concerned with the hold-up risk that the buyer would seek to drive prices to variable costs after the producer commits, might then seek the assurance of a contract before committing to production for one purchaser. But contracts can also help buyer or sellers realize market power in concentrated markets.

Structural change and contracting thereby have varied impacts on market participants.

- They may improve efficiency through increased productivity, either through the exploitation of scale economies that reduce costs or through the provision of valued varieties that would be otherwise

unavailable. Improved efficiency benefits consumers, may benefit some resource providers (as reduced retail price leads to increased consumption), and usually harms non-adopters.

- Contracting may make some marketing channels less viable if channel costs have scale economies and contracting shifts volumes away from other channels. In brief, this is the theory of mandatory livestock price reporting (Perry et al. 2005). Here, contracting provides benefits but generates externalities (Roberts and Key 2005).
- The larger antitrust and industrial organization literature contains numerous examples of the use of contracts to create or exploit market power. In these cases, contracts benefit the monopolist seller or monopsonist buyer, and harm other participants in the supply chain. We turn to those applications now.

### Contracts and Antitrust Tools

Current policy starts with actions against collusion—explicit cooperation among rivals to set prices or allocate markets. Collusion can be a criminal violation, punishable by jail terms and substantial fines, and lies at the core of recent international price fixing prosecutions, many of which concerned food products and agricultural inputs (Connor 2004). Because successful prosecution requires explicit evidence of agreement, tacitly collusive pricing—where rivals independently recognize and implement noncompetitive prices, without explicitly cooperating—is not illegal. But because tacitly collusive pricing is also difficult to implement in markets with easy entry and many participants, antitrust policy also aims at altering, where feasible, conditions that may lead to tacit collusion or to the unilateral exercise of market power. *Mergers* are one example; antitrust enforcers aim to stop those mergers that may lead to the exercise of market power. Business practices, including contract designs, form a second example; enforcers aim to enjoin facilitating practices that ease tacit collusion, and exclusionary practices that may deter entry and allow the exercise of market power. Actions against business practices can be complex and controversial, because most practices have multiple goals and effects.

Actions taken against existing monopolies are few and far between, because the most

<sup>4</sup> Or marginal costs for product prices and marginal value products for input prices.

<sup>5</sup> Endogeneity is also a real issue—intense price competition in markets with homogenous products will increase concentration by forcing out high-cost producers (Sutton 1998).

likely remedy (divestiture) is not promising, especially when monopoly may have been realized through superior efficiency, thereby creating an efficiency tradeoff to any divestiture, in addition to the costs of the case and remedy itself.<sup>6</sup>

### *Facilitating Practices in Agricultural Contracts*

A contract could be structured to limit price competition, by using pricing mechanisms, common in other industries, that can deter rivals from competing aggressively with one another.

Consider marketing contracts for cattle.<sup>7</sup> Contracts often specify a base price formula. One approach to determining a base price is to set it at the highest spot market price paid for cattle during a comparison time period, a mechanism known in the industry as "top of the market" (TOMP) pricing. Contracts often then specify deviations from the base, related to product quality or other features of the transaction. TOMP clauses can transform bidding strategies in spot markets (Xia and Sexton 2004). If a packer offers an unusually high spot price to a seller, perhaps because that seller has other offers, the packer will also have to pay commensurately higher prices on all its TOMP contract cattle, in addition to the cattle in the specific transaction. Faced with the added costs from aggressive spot market bidding, the packer will be more likely to refrain from aggressive bidding for spot market cattle.

Another feature of spot market bidding can limit spot prices and also hold contract prices down when contract price formulas are based on spot prices. In some cattle markets, bids are offered only in whole dollar amounts, such as eighty dollars per cwt. That feature mirrors pricing conventions in NASDAQ stock trades, which were alleged to favor brokers and were the subject of considerable litigation until the conventions were changed (Christie and Schultz 1994). A packer considering a competitive bid for a shipment of cattle would have to bid a full dollar above a rival bid in order to obtain the cattle. If that packer also had contract cattle priced under a TOMP formula, the packer would also have to consider the effect of that additional dollar on prices paid for the contracted cattle.

Here's an example. Suppose a packer aimed to acquire 20,000 cattle per week, half through contracts and half through spot market purchases. Assume that the packer bought 9,000 spot market cattle at a price of \$80/cwt, but would need to pay \$81/cwt (about \$11.50 more per head) to get the extra 1,000 cattle needed (the extra spot market cattle would allow the plant to run near capacity, reducing per head processing costs). Without a TOMP pricing clause in a contract, the packer's additional costs of obtaining the extra cattle, over the existing price of \$80 a hundredweight, would be \$11,500 (\$11.50 per head). With a TOMP clause, the packer would be obligated to also pay \$81 a hundredweight for all its contract cattle, and the additional costs of getting another 1,000 cattle would be \$126,500 (an extra \$11.50 a head on the 10,000 contract cattle as well as the last 1,000 spot market cattle). In this example, the TOMP clause provides a strong incentive to avoid driving spot market prices up in order to obtain additional spot market cattle. If competing packers use TOMP clauses, then the contracts could facilitate reductions in competitive intensity and in spot and contract prices—the contracts could serve as a facilitating device for tacit collusion.

But if only one buyer in a market uses a TOMP clause, that buyer becomes a less aggressive bidder. Rivals could continue to bid aggressively, and the result will be lower production and higher per unit costs for the buyer with a TOMP clause. As a result, such pricing clauses can be facilitating devices only if they are used by all leading buyers in a concentrated market. In addition, such contracts also require the added factor of entry barriers to be effective.

### *Exclusionary Practices in Agricultural Contracts*

How can a contract restrict entry? Meatpacking has important scale economies (larger plants realize lower per animal slaughter costs), so an entrant must attract a large flow of animals in a local market area to run a plant efficiently. If one packer can use contracts to tie up a substantial portion of the local livestock supply, an entrant packer will have to pay substantially higher prices to attract enough cattle, either by paying for contract liquidations or through bidding for enough spot market cattle. Contracts, by raising entrants' costs, may hence deter their entry. With entry

<sup>6</sup> *United States v. AT&T* (1983) was the last major case, while the more recent *United States v. Microsoft* focused on Microsoft's exclusionary practices rather than the firm's pricing.

<sup>7</sup> Livestock examples are used, for consistency and because they are the most controversial.

restricted, the contractor could then force spot prices down by limiting spot market cattle purchases.

But exclusion requires several conditions to be met. There should be significant scale economies in production, such that an entrant would be concerned about obtaining large supplies of raw materials. Contracts must also tie up local supplies for substantial periods; otherwise, an entrant need only wait for contracts to lapse to begin acquiring supplies. However, only some contracts tie livestock sellers and packers together for extensive periods. Hog production contracts do so by requiring large investments on the part of growers and by prohibiting grower sales from contracted facilities to other packers; and some—though not all—hog contracts also clearly specify a contract life of five to ten years. In contrast, poultry contracts, which also require large investments on the part of growers while prohibiting sales to other buyers during the life of a specific contract, frequently cover only a single flock or group of flocks in a short time period. They do not carry long lives to match the long-lived grower investment, and growers can recontract quickly.<sup>8</sup> Cattle contracts are also not nearly as binding as hog contracts; they typically cover the short period that the cattle are in the feedlots and frequently do not prohibit a feedlot from selling to other buyers. Without long-term contracts linking packers and sellers, entrants can bid not-yet-contracted cattle away from existing packers.

### *Price Discrimination: A Point of Conflict in Competition Policy*

Suppose a buyer pays different prices to sellers for the same product—for example, for cattle of identical quality. Because market power is a necessary condition for such price discrimination, some legal and regulatory strategies have aimed to limit market power by attacking price discrimination. But price discrimination may also have beneficial effects, and attempts to limit it may be counterproductive. Hence, price discrimination is a controversial topic, and the controversy seems to be particularly acute in agricultural markets.

How could a contract facilitate price discrimination? Suppose a buyer starts with some individual market power, exercised by limiting purchases and hence prices. The buyer could increase profits further by buying and processing some additional cattle, but only if the higher price paid for them could be paid just for those cattle, without driving up prices on all other cattle in the market. The buyer could do that by offering an exclusive contract, not offered to all sellers, for just the additional cattle needed at a price above the spot price. In this way, the packer could force spot prices down while still acquiring enough cattle in spot and contract markets to run plants efficiently, realizing higher profits through lower spot prices as well as lower unit processing costs (Love and Burton 1999).

We do not know how widespread price discrimination in livestock markets is, but sellers often opine that it is quite extensive (Perry et al. 2005), and price discrimination is at the core of some lawsuits and some legislative initiatives concerning agricultural contracts. But courts and antitrust enforcers have been reluctant to attack, under the antitrust statutes, practices that facilitate price discrimination.<sup>9</sup>

They are reluctant because the effects of price discrimination are not unambiguously bad, and because some remedies may weaken competition. First, price discrimination may be hard to distinguish from other sources of price variation, such as differences in product quality, delivery times, reliability, and volumes. Efforts to limit price discrimination may therefore limit the use of prices as quality incentives. Second, laws that limit price discrimination may encourage collusive pricing, because price discrimination can break out as buyers compete with one another. TOMP pricing, for example, works as an anticompetitive device only if it eliminates outbreaks of localized price competition, which would also look like price discrimination. Finally, discriminatory prices (different prices for identical products) may in some cases improve performance (Levine 2002). That is, revenues may not cover the costs of large, capital intensive facilities without discriminatory prices, with the alternative being an industry of smaller facilities with higher processing costs, higher product prices

<sup>8</sup> MacDonald and Korb (2006) show that 56% of contract hog production, but only 24% of contract broiler production, was covered by long-term contracts in 2003 (five years or more); in contrast, 67% of contract broiler production, and 40% of contract hog production, was covered by contracts with durations of a year or less.

<sup>9</sup> The *Pickett* decision also suggests that courts may be reluctant to proceed under statutes, such as the Packers and Stockyards Act, they view as antitrust-like.

(leading to smaller quantities), and lower farm prices.

### **The Limits of Competition Policy for Contract Issues**

Some issues arising from agricultural contracts have little to do with competition as understood in antitrust applications. For example, production contracts tie growers and contractors closely together, and they generate many commercial disputes. Growers often complain that, after contracts have been signed, contractors have required additional investments for renewal, provided lower quantities than they originally represented to growers, reduced payments or manipulated payment formulas, or limited the contract's duration.

These are often important issues, and individual producers are often at a disadvantage in contract negotiations because they are far less experienced than contractors. But antitrust tools are designed to define economic markets, and to evaluate the effects of actions on market outcomes (such as market prices and quantities). For production contracts, the key markets are labor markets, for growers services, and antitrust tools can be applied to contractor actions that create or extend monopsony power in those markets. But production contract disputes rarely focus on the effects of contractor actions on markets for growers' services, or on monopsony for growers' services. Other legal and regulatory avenues are better designed to handle the commercial disputes that do arise under production contracts (Hovenkamp 2005).

In another context, contracts appear to facilitate shifts of agricultural production to larger enterprises, creating a competitive disadvantage for many smaller farms, especially if there are scale economies that favor larger units. There is a long history of attempts, in antitrust policy, to protect certain groups of competitors, especially those seen to be at risk from new market developments, and some recent agricultural contracting proposals fit within that history.

That history goes back at least to the first federal antitrust statute, the Sherman Act (1890), which was passed during the country's initial major shift toward large nationally organized corporate manufacturing and transport firms; similarly, the Robinson-Patman Act (1936) was passed during the shift of retailing toward large chains. While there is controversy

concerning Congress' intentions for each law, the weight of the evidence suggests broad-based concerns; some cared primarily about controlling market power, while others aimed to protect high cost producers from structural change and new competition—goals likely to be antithetical to one another (Hovenkamp 2005). Moreover, court decisions often embodied the same tension; while some interpreted the laws as aimed at furthering competition, others interpreted the laws to be aimed at protecting particular classes of firms from competition. This tension was particularly apparent in cases concerned with contractual business practices, such as exclusive dealing, retail price maintenance, and tying, and led to a great deal of legal uncertainty.

However, judicial interpretation of the laws changed sharply in the last three decades, along with academic commentary and the actions of federal enforcers of the laws. There is now a strong consensus that the purpose of the laws is to ensure competition, wherever feasible (Hovenkamp 2005), and far less concern for the impacts of competition and structural change on the fortunes of competitors as such. Moreover, there is a strong view that intervention must have effective remedies, and should be avoided otherwise. As a result, efforts to extend antitrust tools to protect classes of farms (such as family farms, as opposed to corporate farms), to limit non-collusive price discrimination among buyers, to alter market structure as an end in itself, or to restrict commercial transactions without evidence of exclusionary or facilitating effect, are running against a strong trend in antitrust enforcement and are unlikely to be successful. To the extent that policy initiatives aim to apply an older antitrust rhetoric concerning market structure, and the protection of competitors, they are likely to be frustrated.

Agricultural contracts can restrict competition, as that phrase is now applied in antitrust policy. Contracts can be designed to facilitate tacit collusion on prices or sales, and they can be designed to exclude competitors (creating barriers to entry). The economics of this area, and the legal treatment, is subject to a good deal of uncertainty, but also a good deal of new and interesting applications—see, for example, the evolving series of applications over the four editions of Kwoka and White (2004). What we do not know much about, particularly in agribusiness applications, is the jump from possibility to application. Aside from the Xia and Sexton (2004) work cited

above, we actually have little work on the competitive implications of specific features of agricultural contracts, particularly as they relate to the antitrust concepts of facilitating and exclusionary practices, with even less work on the real-world extent of those features that might cause competitive problems. With a continuing expansion of vertical contractual relationships in agriculture, we are likely to see an expanding array of contract features, along with more legislative and legal challenges to contracts, and we face a pressing need for focused analyses of the effects of specific contractual features on competitive behavior.

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